

Division 3. Air Resources Board

Chapter 9. Off-Road Vehicles and Engines Pollution Control Devices

Article 4.5. Off-Road Large Spark-Ignition Engines

§ 2438. In-Use Compliance Program.

(a) This section applies to new 2004 and later model year off-road large spark-ignition engines with engine displacement greater than 1.0 liter.

(b) Manufacturer In-Use Testing Program.

Standards and Test Procedures. The emission standards, exhaust sampling and analytical procedures are those described in the Test Procedures, and are applicable to engines tested only for exhaust emissions. An engine is in compliance with these standards and test procedures only when all portions of these in-use test procedures and specified requirements from the Test Procedures are fulfilled, except that any adjustable engine parameters must be set to the nominal value or position as indicated on the engine label.

(1) Within a manufacturer's model-year engine production period, the ARB will identify those engine families, and the specific configurations within an engine family, that the manufacturer must subject to in-use testing as described below. For each model year, ARB may identify a number of engine families that is no greater than 25 percent of the number of engine families to which this article is applicable. For those manufacturers producing three or less engine families in a model year, ARB may designate a maximum of one engine family per model year for in-use testing.

(2) For each engine family identified by ARB, engine manufacturers must perform emission testing of an appropriate sample of in-use engines from each engine family. Manufacturers must submit data from this in-use testing to ARB.

(3) An engine manufacturer must test in-use engines from each engine family identified by ARB. All engines selected by the manufacturer for testing must be identified by the manufacturer, and a list of the selected engines must be submitted to the Executive Officer, prior to the onset of testing. Engines to be tested must have accumulated a minimum of 0.50 (50 percent) of the family's certified useful life period. The number of engines to be tested by a manufacturer will be determined by the following method:

(A) a minimum of four engines per family, provided that no engine fails any emission standard. For each exceedance, two additional engines must be tested until the total number of engines equals ten.

(B) For engine families of less than 500 engines (national production) for the identified model year or for engine manufacturers who make less than or equal to 2,000 engines nationally for that model year, a minimum of two (2) engines per family provided that no engine fails any emission standard. For each failing engine, two more engines shall be tested until the total number of engines equals ten (10).

(C) If an engine family was certified using carryover emission data and has been previously tested under paragraphs (b)(3)(A) or (b)(3)(B) of this section (and a recall for that family has not occurred), then only one engine for that family must be tested. If that one engine fails any emission standard, testing must be conducted as outlined in subsections (b)(3)(A) or (b)(3)(B), whichever is appropriate.

(4) The Executive Officer may approve an alternative to manufacturer in-use testing, where:

(A) Engine family production is less than or equal to 200 per year, nationally;

(B) Engines cannot be obtained for testing because they are used substantially in vehicles or equipment that are not conducive to engine removal such as large vehicles or equipment from which the engine cannot be removed without dismantling either the engine, vehicle, or equipment; or

(C) Other compelling circumstances associated with the structure of the industry and uniqueness of engine applications. Such alternatives shall be designed to determine whether the engine family is in compliance.

(5) The engine manufacturer shall procure in-use engines which have been operated between 0.50 and 1.0 times the certified engine's useful life period. The engine manufacturer may test engines from more than one model year in a given year. The manufacturer shall submit a plan for testing within twelve calendar months after receiving notice that ARB has identified a particular engine family for testing and shall complete testing of such engine family within 24 calendar months from the date of approval of the plan by ARB. Test engines may be procured from sources associated with the engine manufacturer (i.e., manufacturer-established fleet engines, etc.) or from sources not associated with the manufacturer (i.e., consumer-owned engines, independently owned fleet engines, etc.).

(c) Maintenance, procurement and testing of in-use engines.

(1) A test engine must have a maintenance and use history representative of in-use conditions.

(A) To comply with this requirement a manufacturer must obtain information from the end users regarding the accumulated usage, maintenance, repairs, operating conditions, and storage of the test engines.

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(B) Documents used in the procurement process must be maintained as required.

(2) The manufacturer may perform minimal restorative maintenance on components of a test engine that are not subject to parameter adjustment. Maintenance may include only that which is listed in the owner's instructions for engines with the amount of service and age of the acquired test engine. Repairs may be performed on a test engine with prior Executive Officer approval. Documentation of all maintenance, repairs, defects, and adjustments shall be maintained and retained as required.

(3) At least one valid emission test, according to the Test Procedure, is required for each in-use engine.

(4) The Executive Officer may waive portions or requirements of the test procedure, if any, that are not necessary to determine in-use compliance.

(5) If a selected in-use engine fails to comply with any applicable emission standards, the manufacturer shall determine the reason for noncompliance. The manufacturer must report within 72 hours after the completion of the test specifying the emission results and identifying the pollutant which failed to comply with the emission standard. The manufacturer must report all such reasons of noncompliance within fifteen business days of completion of testing. Additional time beyond the initial fifteen days may be granted providing that the manufacturer receives prior approval from the Executive Officer. The reports may be filed electronically or mailed to the following address: Chief of Mobile Source Operations Division, 9528 Telstar Avenue, El Monte, CA 91731.

(6) At the discretion of the Executive Officer, an engine manufacturer may test more engines than the minima described in paragraph (b)(3) of this section or may concede failure before testing a total of ten engines. Upon conceding failure the manufacturer shall proceed with a voluntary recall program as specified in Section 2439.

(7) The Executive Officer will consider failure rates, average emission levels and the existence of any defects, among other factors, in determining whether to pursue remedial action under this subpart. The Executive Officer may order a recall pursuant to Section 2439 before testing reaches the tenth engine whenever the Executive Officer has determined, based on production-line test results or in-use test results, enforcement testing results, or any other information, that a substantial number of a class or category of equipment or engines produced by that manufacturer, although properly maintained and used, contain a failure in an emission-related component which, if uncorrected, may result in the equipments' or engines' failure to meet applicable standards over their useful lives; or whenever a class or category of equipment or engines within their useful lives, on average, do not conform to the emission standards prescribed pursuant to Part 5 (commencing with Section 43000) of Division 26 of the Health and Safety Code, or any regulation adopted by the state board pursuant thereto, other than an emissions standard applied to new engines to determine "certification" as specified in Chapter 9, as applicable to the model year of such equipment or engines.

(8) Prior to an ARB-ordered recall, the manufacturer may perform a voluntary emissions recall pursuant to Article 4.5, Section 2439(b). Such manufacturer is subject to the reporting requirements in subsection (d) below.

(9) Once ARB determines that a substantial number of engines fail to conform with the requirements, the manufacturer will not have the option of a voluntary emissions recall.

(d) In-use test program reporting requirements.

(1) The manufacturer shall electronically submit to the Executive Officer within three months of completion of testing all emission testing results generated from the in-use testing program. The following information must be reported for each test engine:

(A) engine family,

(B) model,

(C) engine serial number or alternate identification, as applicable,

(D) date of manufacture,

(E) estimated hours of use,

(F) date and time of each test attempt,

(G) results (if any) of each test attempt,

(H) results of all emission testing,

(I) summary of all maintenance, repairs, and adjustments performed,

(J) summary (if any) of all ARB pre-approved modifications and repairs,

(K) determinations of noncompliance or compliance.

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(2) The manufacturer must electronically submit the results of its in-use testing with a pre-approved information heading. The Executive Officer may exempt manufacturers from this requirement upon written request with supporting justification.

(3) All testing reports and requests for approvals made under this subpart shall be sent to the Executive Officer.

(4) The Executive Officer may require modifications to a manufacturer's in-use testing programs.

(e) In-use emissions credit, averaging, banking, and trading program.

(1) General applicability

(A) The in-use credit program for eligible engines is described in this subsection. Participation in this program is voluntary.

(B) An engine family is eligible to participate in the in-use credit program if it is subject to regulation under Section 2433 of this part with certain exceptions specified in paragraph (C).

(C) Engines may not participate in the in-use averaging, banking, and trading program if they are delivered to a "point of first retail sale" outside of California.

(D) Reserved.

(E) An engine family with a compliance level, as determined by in-use testing below, the applicable emission standards to which the engine family is certified may generate emission credits for averaging, banking, or trading in the in-use credit program.

(F) Positive credits generated in a given model year may be used in that model year or in any subsequent model year.

(G) A manufacturer of an engine family with a compliance level exceeding the applicable emission standards to which the engine family is certified, may, prior to the date of the report use previously banked credits, purchase credits from another manufacturer, or perform additional testing to address the associated credit deficit (negative credits or a need for credits).

(H) Reserved.

(I) A manufacturer must notify the Executive Officer of plans to test additional engine families beyond the maximum 25% required for the in-use testing program. Such notice must be submitted to the Executive Officer 30 days prior to initiation of testing. If the additional testing discovers an engine family to be in noncompliance with the applicable emission standards, the testing must be treated as if it were a failure of the normal in-use testing requirement of an engine family.

(J) Manufacturers must demonstrate a zero or positive credit balance under the in-use credit program for a particular model year within 90 days of the end of the in-use testing of that model year's engine families.

(2) Engines subject to the 2004 and later model-year emission standards are eligible to participate in the in-use credit program.

(3) The definitions below shall apply to this subsection:

(A) Averaging means the exchange of in-use emission credits among LSI engine families within a given manufacturer's product line.

(B) Banked credits refer to positive emission credits based on applicable actual production or sales volume as contained in the end of model year in-use testing reports submitted to Executive Officer of the ARB. Some or all of these banked credits may be revoked if the Executive Officer's review of the end of model year in-use testing reports or any subsequent audit action(s) uncovers problems or errors.

(C) Banking means the retention of in-use emission credits by the manufacturer generating the emission credits for use in future model year averaging or trading as permitted by these regulations.

(D) Carry-over engine family means an engine family which undergoes certification using carryover test data from previous model years.

(E) Compliance level for an engine family is determined by averaging the in-use test results from each engine.

(F) In-use credits represent the amount of emission reduction or exceedance, for each regulated pollutant, by an engine family below or above, respectively, the applicable emission standards. Emission reductions below the emission standard are considered "positive credits," while emission exceedances above the emission standard are considered "negative or required credits."

(G) Trading means the exchange of in-use emission credits between manufacturers or brokers.

(4) Averaging.

Board Administration and Regulatory Coordination Unit

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(A) A manufacturer may use averaging across engine families to demonstrate a zero or positive credit balance for a model year. Positive credits to be used in averaging may be obtained from credits generated by another engine family of the same model year, credits banked in previous model years, or credits obtained through trading.

(B) Credits used to demonstrate a zero or positive credit balance must be used at a rate of 1.1 to 1.

(5) Banking.

(A) A manufacturer of an engine family with an in-use compliance level below the applicable emission standards for a given model year may bank positive in-use credits for that model year for in-use averaging and trading.

(B) A manufacturer may consider credits banked 30 days after the submission of the report. During the 30 day period ARB will work with the manufacturer to correct any error in calculating banked credits, if necessary.

(6) Trading.

(A) An engine manufacturer may exchange positive in-use emission credits with other LSI engine manufacturers through trading.

(B) In-use credits for trading can be obtained from credits banked for model years prior to the model year of the engine family requiring in-use credits.

(C) Traded in-use credits can be used for averaging, banking, or further trading transactions.

(D) Unless otherwise approved by the Executive Officer, a manufacturer that generates positive in-use credits must wait 30 days after it has both completed in-use testing for the model year for which the credits were generated and submitted the report before it may transfer credits to another manufacturer or broker.

(E) In the event of a negative credit balance resulting from a transaction, both the buyer and the seller are liable, except in cases involving fraud. Engine families participating in a negative trade may be subject to recall under section 2439 of this article.

(7) Credit Calculation.

(A) For each participating engine family, emission credits (positive or negative) are to be calculated according to the following equation and rounded, in accordance with ASTM E29-93a, to the nearest gram. ASTM E29-93a has been incorporated by reference. Consistent units are to be used throughout the equation. The following equation is used to determine the credit status for an engine family whether generating positive or negative in-use emission credits:

$$\text{Credits (grams)} = \text{SALES} \times (\text{STD} - \text{CL}) \times \text{POWER} \times \text{AF} \times \text{LF} \times \text{UL}$$

Where:

SALES = the number of eligible sales tracked to the point of first retail sale in the U.S. for the given engine family during the model year.

STD = the emission standard in g/bhp-hr as noted in California Code of Regulations, Title 13, Section 2433.

CL = compliance level of the in-use testing in g/bhp-hr as approved by ARB.

UL = useful life in hours (5000 hours for engines with displacement) greater than 1.0 liter.

Power = the average power of an engine family in bhp (sales weighted). The power of each configuration is the rated output in horsepower as determined by SAE J1349 (June 1995) or J1995 (June 1995), as applicable. These procedures have been incorporated by reference.

LF = Load factor; Fraction of rated engine power utilized in-use (0.32 for engines with displacement greater than 1.0 liter).

AF = adjustment factor for the number of tests conducted, as determined from the following table, except that when a manufacturer concedes failure before completion of testing, the adjustment factor shall be 1.0:

<i>Number of Engines Tested</i>	<i>Adjustment Factor</i>
2*, 4	0.5
6	0.75
8	0.9
10	1.0

*Small volume manufacturer

(B) Any credits used for either averaging, banking, or trading shall be assessed a one-time discount of 10 percent.

(8) Maintenance of records.

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(A) Any manufacturer that is participating in the in-use credit program set forth in this subsection shall establish, maintain, and retain the records with respect to its participation in the in-use credit program.

(B) The Executive Officer may void an Executive Order for an engine family for which the manufacturer fails to retain the records required under this section or to provide such information to the Executive Officer or designee upon request.

(9) Reporting requirements.

(A) Any manufacturer who participates in the in-use credit program is required to submit an end of the model year in-use testing report either within 90 days of the end of the model year in-use testing of a given model year's engine families, or at the same time as the final certification averaging, banking, and trading report, whichever is later. The end of the model year in-use testing report must contain the required information and show the calculated credits from all the in-use testing conducted by the manufacturer for a given model year.

(B) Reports shall be submitted to the Chief of the Mobile Source Operations Division.

(C) A manufacturer that fails to submit a timely report as required will be considered to not have participated in the in-use credit program.

(D) If the Executive Officer or the manufacturer determines that a reporting error occurred on an end of model year report previously submitted to ARB under this subsection, or an engine family in-use testing report submitted to ARB, the manufacturer's credits and credit calculations will be recalculated. Erroneous positive credits will be void. Erroneous negative credits may be adjusted by the Executive Officer. An update of previously submitted "point of first retail sale" information is not considered an error and no increase in the number of credits will be allowed unless an error occurred in the calculation of credits due to an error in the "point of first retail sale" information from the time of the original end of model year report.

(10) Notice of Opportunity for Hearing.

Any voiding of an engine family's Executive Order will occur only after the manufacturer concerned has been offered an opportunity for a hearing. The Executive Officer must approve or disapprove the documents required by this Section within 90 days of the date such documents are received from the manufacturer. Any disapproval must be accompanied by a statement of the reasons therefor. In the event of disapproval, the manufacturer may file for an adjudicative hearing under Title 17, California Code of Regulation, Division 3, Chapter 1, Subchapter 1.25 to review the decision of the Executive Officer.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code. Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150-43154, 43205.5 and 43210-43212, Health and Safety Code.

REFERENCE